Update Bulletin No. 877

Jim Dulley

Thank you for your interest in writing to me about super-quiet and new full-featured bathroom vent fans. Running a bathroom vent fan is the most efficient method to remove moisture and odors from your bathroom. Excessive moisture can cause damage to the materials in your home and aggravate allergies. Running a bathroom vent fan too long can draw too much conditioned air out of your home.

The sound level of vent fans is rated in units called "sones". A rating of less than 2 sones (see page 3) is very quiet. Generally, a larger fan (higher air flow rate - cfm) makes more noise, so do not just buy the largest capacity model on sale. The chart on page 4 shows recommended bathroom vent fan sizes. Another good source for background information on sizing fans can be found at www.hvi.org (Home Ventilation Institute). They have product listings of all types of residential vent fans, including bath fans.

Continental Fan

You have two options — a standard ceiling mount or a remote in-line fan (mounted in attic). In-line fans are very quiet. One fan can have inlets in two separate bathrooms. To install one, you remove the existing ceiling vent fan and cover the opening with an inlet grill. This grill is attached with a duct to the in-line fan. See the picture of a remote fan kit on left.

There are many quiet ceiling mount fans with various convenience options. Several models from Nutone and Broan, with automatic humidity- and motion-sensing lights, are quiet and convenient to use. Marley and Panasonic also offer bath vent fans with humidity-sensing controls. The most efficient ones use compact fluorescent lights. In order for a lighted bath vent to be Energy Star qualified, it must use compact fluorescent light bulbs and have an efficient motor.

Broan and Nutone offer the bath vent fan upgrade kit which includes a new motor, grille and mounting plates. It fits most of their older fans. Broan and Nutone bath fans are, by far, the commonly installed by builders.

Jim

Selected Manufacturers of Standard Ceiling Mount and Remote In-line Bathroom Vent Fans

AMERICAN ALDES, 4537 Northgate Ct., Sarasota, FL 34234 - (800) 255-7749 (941) 351-3441 www.americanaldes.com

type - remote in-line

features - The "P" series in-line duct fans have an external rotor motor with permanently lubricated bearings which allows for the use of a solid state speed control with variable speed from 100% down to a full stop without danger of overheating. The fan housing is formed in heavy gauge galvanized steel with electrostatically applied powder coat finish. A backward curved centrifugal impeller allows for low noise levels. The fans can be installed in a vertical or horizontal position using 4", 5", 6", 8", 10" or 12" duct sizes. The in-line fans have a three-year warranty. There are several standard packages available for the in-line duct fans — range exhaust package, dual or single exhaust point packages or a dryer booster package. The packages include all the hardware necessary for installation of the kits. The "SV-160" multi-port remote bath fan is ideal for today's large bathroom suites where more than one fan may be needed. Other multi-port fans available.

BROAN MFG. CO., PO Box 140, Hartford, WI 53027 - (800) 558-1711 www.broan.com

type - ceiling mount and remote in-line

features - The QTX series are the most quiet bathroom vent fans made with a sound level of less than 0.3 to 1.4 sones and a maximum air flow rate from 50 cfm to 150 cfm. They use six-inch ducting for quiet operation so they are ideal for new construction. Most existing bathroom vent fans use four-inch ducts, so switching to a new QTX series will require all new ducting. These models als meet Energy Star standards. Some have a four-watt night light and the lighted models use compact fluorescent bulbs. Model QTX110HL has a fan, heater and light. This quiet series offers a light switch that has an indicator light that shows when the fan/lights are on. The models with the E on the end feature a highly energy efficient motor which uses approximately 1/3 the electricity of the standard version. The "SensAire" series has automatic operation with three sensing control options. The motion sensing fan "MS90" automatically turns on when you enter the room with an adjustable shut off time from 5 to 60 minutes after motion stops. The humidity sensing fans (ones with an "H" in the model number) detect increases in humidity and automatically turns on with an adjustable automatic shut off time from 5 to 60 minutes. The motion and humidity sensing fans automatically turns on the light when motion is detected and the humidity sensor controls the fan. A three-way control is available that turns the fan on, off or the auto control activates the sensor and there are light and night light control switches. There is a "Designer" series available with a decorative frosted glass lens with frames of solid oak or aluminum finished in polished brass, polished chrome or painted white. They have a 7-watt night light for safety. There are combination units that offer fan-forced heat, a fan, a light and a night light. The "Decorative Glass Light Fixture" series is a combination decorative light fixture with an exhaust fan. Available with clear beveled glass panels or a frosted melon glass globe. The bath fan upgrade kit Model 690 includes a new motor (60 CFM and 3.0 Sones) reduces sound up to 50%, improves air movement up to 20% and helps control humidity that causes mold and mildew. There are several remote multipoint fans available.

COAST PRODUCTS, INC., 954 Elliot Ave. West, Seattle, WA 98119 - (800) 735-7026 (206) 285-5120 www.coastproducts.com

type - ceiling mount

features - The "Vent-Axia Fan n' Light" is an extra low voltage fan (12-volt) and light designed for a single ceiling mounted fitting. It is designed for mounting in a variety of ceiling thicknesses up to 3/4" using two swivel clips and in thicker material using two fixing holes that are provided. The safety isolating transformer can be wall mounted or sited in the loft. It is fitted to 4-inch rigid or flexible ductwork. It has a 20 watt 40° spread, preformed DichroicMulti-Mirror™ lamp that gives off soft warm light. The lamp is easy to change and has a life of up to 5000 hours. The construction is all plastic making it suitable for shower enclosures. The transformer is mounted outside an area 10 feet from the tub or shower. This can be in the bathroom, outside the bathroom or in the loft space. The maximum cable run from the control unit to the fan is 25 feet. There is simultaneous on and off operation of the fan and light from the bathroom light switch. The "LoWatt" fan has an instant electric opening shutter and closes when the fan is switched off. It can be installed at any angle — wall or ceiling installation.

CONTINENTAL FAN MFG. INC., 203 Eggert Rd., Buffalo, NY 14215 - (800) 779-4021 (716) 842-0670 www.continentalfan.com

type - remote in-line

features - The "AXC" series fans have ball bearing motors that are permanently lubricated for maintenance free operation. The fans have backward curved airfoil blades and there is wide blade spacing making them suitable for handling particulate dust. The enclosed motor housing prevents dust and moisture from entering and damaging the motor's internal parts. The external rotor motor has a stationary shaft while the motor housing rotates. This results in improved motor cooling and extends the fan's temperature capability to 140°F. The fan speed can be controlled using an optional electronic speed control. There are several different exhaust kits available that come complete with all necessary pieces to install the duct fans (remote fan, grille and collar, duct fastening clamps and fan mounting bracket) — regular for single exhaust point or deluxe for two venting points. The fan mounts easily to attic joints with the special mounting bracket. The fans have a five-year warranty.

DEFLECTO CORP., PO Box 50057, Indianapolis, IN 46250 - (800) 428-4328 www.deflecto.com

type - remote in-line

features - The totally enclosed external rotor motor and backward inclined blades are dipped with a protective covering to prevent rusting. The internal air vanes straighten the air for a smoother flow. The ball bearings have a specially developed lubricant and are sealed for life. The fan is molded of GE Noryl plastic for durability and long life. Tube kits are available that include the fan, mounting bracket, diffuser (exhaust grille) and self-tapping screws.

FAN AM, 2235 6th St., Sarasota, FL 34237 - (800) 838-4074 (941) 955-9788 www.fanam.com

type - ceiling mount

features - The "UQS" series are speed controllable from 100% to 0% through a decrease in the voltage. This can be achieved by using a solid state control. The exterior grille is available in metal or plastic. The impeller is removable for easy cleaning. Periodic inspection to clear the impeller of any dust or debris is recommended. The ball bearings are permanently sealed requiring no maintenance. The fan housings are constructed of galvanized steel and coated with a white, baked enamel finish. The "R" series in-line models have a unique direct drive motor design. Auto-reset thermal overload protection ensure a long lifespan. Motor design precludes any need for servicing.

FANTECH INC., 1712 Northgate Blvd., Sarasota, FL 34234 - (800) 747-1762 (941) 351-2947 www.fantech.net

type - remote in-line

features - The "FR Series" fans are available as easy-to-install kits. There is a choice of single (regular) or dual point (deluxe) exhaust. The kits include all basic components — fan, mounting bracket and grille/collar/backdraft damper combination. The only additional elements required to complete the installation are flexible ductwork and a roof or side vent. All kits are prewired for easy connection to your electrical source. Available to fit 4" to 10" duct sizes. The fan housing is made of GE Noryl plastic allowing the fan to be mounted in outdoor and wet locations. The fans are caulked at the motor screws, the wiring cables and along the seams of the fan to prevent moisture from entering the housing. It is 100% speed controllable. The motors are a permanent split capacitor type, with automatic reset thermal overload protection and sealed ball bearings. There are several other different exhaust kits available — pressure switch kits for dryer boosting and kitchen range exhaust fan kits. The "FX Series" has a galvanized steel housing that is coated with a powder coat, baked enamel finish.

MARLEY ENGINEERED PRODUCTS, 470 Beauty Spot Rd., Bennettville, SC 29512 - (843)-479-4006 www.marleymeh.com

type - ceiling mount

features -The "Super Q71" series has heavy-duty housing and uses a super-quiet squirrel-cage blower for reduced sound levels. There is a decorative fan with an attractive light fixture that uses four 60-watt candelabra lamps. It is available in a white or brass finish. The "Aware 7100LH" automatically detects humidity and turns the fan on to remove the steam, moisture and odors from the bathroom. When the steam and moisture are removed the fan turns off automatically. It has a 100-watt lamp capacity and a 7 1/2-watt night light. The energy saving fans use either 13-watt twin tube or 21-watt fluorescent lamps. Several of the bath fans feature a patented snap-in junction box cover, allowing quick and easy installation. See page four. There are several decorative bath fans with an attractive beveled glass or a frosted glass light fixture eliminating the need for separate ventilation and lighting units.

NUTONE INC., 4820 Red Bank Rd., Cincinnati, OH 45227 - (888) 336-3948 (513) 527-5100 www.nutone.com

type - ceiling mount, wall mount and remote in-line

features - Nutone is now owned by Broan, so some of the their bathroom vent fans are very similar. The 742RBNT is a round decorative fan/light. The "QT100LHM" automatic fan activates when humidity levels exceed certain limits protecting the bathroom from mold and mildew. The light automatically activates when motion is detected. It can be set on automatic or manual operation. A delay timer is user adjustable. A switch is available with an auto/off switch and three separate on/off switches for the vent, light and night light. See illustration on the bottom of page three. There are several other styles in this series and they have a white polymeric grille. The "Ultra-QuieTTest" fans include prewired outlet boxes with plug-in receptacles for easy installation. The fans without lights are slim and project a scant 5/8" from the ceiling. The "Deluxe" fans with lights are available with a wood, white polymeric or polished metal frame. They are equipped with a 7-watt night light and have a patented snap-on grille assembly. Model "8832WH" can be mounted on the ceiling or on the wall. Model "8870" does not require ducting and fits through walls 5" to 10" thick. The in-line fans have sealed ball bearings and external rotor motors. Available as complete kits that include all the components to install a single or dual point exhaust system — fan, grille damper and duct clamps.

PANASONIC, One Panasonic Way, Secaucus, NJ 07094 - (800) 211-7262 www.panasonic.com

type - ceiling mount, wall mount and remote in-line

features - The "WhisperCeiling" and the "WhisperLite" models are super quiet, energy efficient ceiling fans that fit 4" to 6" duct sizes. The galvanized housing is treated with rust proof paint which is ideal for withstanding the moisture present in bathrooms. These units have a totally enclosed condenser motor for long life. They are rated for continuous run. Built-in dampers prevent back draft. The "Whisperlite" series double as bright overhead lights. The "WhisperWall" unit fits an 8" duct diameter. The "WhisperFit" units are low profile ceiling mounted fans that fit 3" and 4" duct sizes. The slim, lightweight design allows for quick and easy installation.

PENN VENTILATION (LAU INDUSTRIES), 4509 Springfield St., Dayton, OH 45431 - (937) 476-6500 www.laufan.com

type - ceiling mount

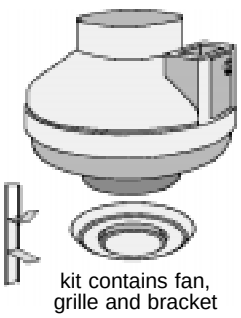
features - The housings are made of galvanized steel so they will not rust. The units feature a forward curved centrifugal wheel. The "ZL" models are totally enclosed, permanently lubricated and thermally protected motors with spring-mounted grilles. They have an unbreakable lens and will hold a 100-watt light bulb. They are UL listed for use over bathtubs and showers when they are connected to a GFCI protected branch circuit. The Zephyrette (ZT) and Zephyr Jr. (ZJ1) have forward curved centrifugal wheels, integral back draft dampers, removable power pack assembly, plug-in motors, permanently lubricated bearings and thermal overload protection.

Bathroom Vent Fans (sones ratings for sound levels inside bathroom)

Manufacturer	*Model*	*Watts*	*cfm*	*Sones*
American Aldes	P-4*	47	100	0.4
	P-5*	44	120	0.5
	P-6*	87	230	0.8
Broan	QTXE050	36	50	0.3
	QTXE080	48	80	0.3
	QTXE110	48	110	0.9
	QTXE150	60	150	1.4
	QTXE110S	48	110	0.9
	QTXE110SFLT	90	110	0.9
	QTR050F	36	50	0.4
	QTR080	84	80	1.0
	QTR110	108	110	1.5
	QTX110HL	1500	110	0.9
	QTR050F	36	50	0.4
	QTR080	84	80	1.0
	QTR110	108	110	1.5
	SP110*	—	110	1.5
Coast Products	Vent-Axia	20	50	—
	LoWatt	12	130	—
Continental Fan	AXC100A*	35	106	—
	AXC125A*	40	159	—
	RG/DX 150A*	80	238	—
Deflecto Corp.	TF4*	—	160	2.4**
	TFK6*	—	270	2.8**
	TF8*	—	410	3.2**
Fan Am	UQS80	30	80	0.3
	UQS130	50	135	0.3
	UQS185	70	182	0.7
	UQS225	110	217	3.5
	R-125	50	146	1.5
Fantech	FR100*	42	90	1.0
	FR110*	75	150	1.0
	FR140*	60	190	2.1
	FR150*	90	220	2.1
	FR200*	123	360	3.2
Nutone	QTXEN050	36	50	0.3
	QTXEN080	48	90	0.3
	QTXEN110	48	110	0.9
	QTXEN150	60	150	1.4
	QT100LHM	50	100	1.5
	754SNNT	192	70	3.5
	ILF120*	44	110	—
	ILF250*	96	250	—
	744FLNT	84	70	1.5
	742RBNT	192	70	2.0
Marley Engeneered Products	7100	84	100	1.5
	7130	90	130	2.5
	7150	190	150	3.5
	7100H	180	100	1.5
	TC667	360	70	4.0
	6100L	180	100	3.0
Panasonic	05VQ3	14	60	0.3
	07VQ3	19	70	0.3
	08VQ3	21	90	0.7
	11VQ3	27	110	1.5
Penn Ventilatior	Z1	55	60	3.4
	ZL1	35	60	2.9
	ZL2	50	85	4.4
	ZT	48	90	1.8
	ZJ1	125	150	2.0

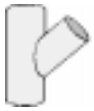
**** Remote in-line duct fans** **** Sound level at fan in attic***

Tube-Fan Fan Kit and Accessories from Deflecto



kit contains fan, grille and bracket

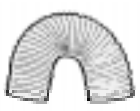
wall or roof caps



Y connector

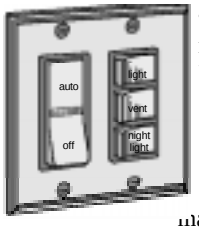
backdraft damper

metal clamps

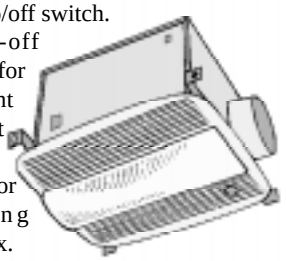


flexible ducting

Humidity-Sensing Fan from Nutone

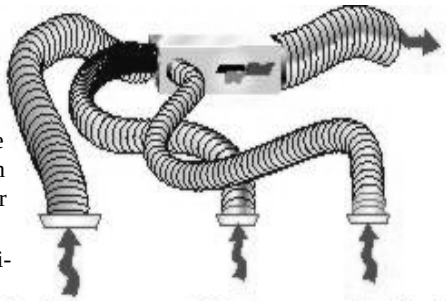


- The fan is automatically activated by humidity.
- The light is automatically activated by motion.
- Automatic or manually operated.
- Comes with a convenient night light.
- White polymeric grilles.
- For baths up to 95 sq. ft., other rooms up to 125 sq. ft.
- Available as unlighted model.
- With auto/off switch.
- 3 on-off switches for vent, light and night light.
- Switch for two-gang outlet box.



SV-160 Multi-Port Bathroom Suite Ventilator by American Aldes

- Designed for today's large master bath suites, the SV160 solves typical bathroom noise problems by virtue of its remote mounting and acoustically insulated case, assuring almost silent operation.
- Designed to operate at higher static pressure than ceiling mounted fans, to overcome the resistance of long duct runs and exterior vent hoods.
- The housing has two 40-50 CFM ports and one more powerful 80-100 port recommended for the area with the highest moisture level—normally the shower or jet spa area.
- The external rotor motor offers years of energy efficient service requiring only 80 watts of power.



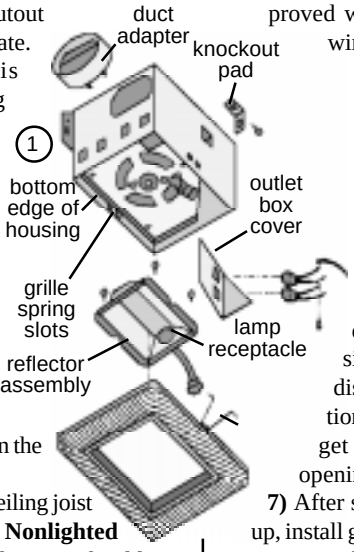
- The motor is totally enclosed with lubricated ball bearings that are sealed for life— moisture can't cause a problem.
- The motor is suitable for continuous duty and may be operated with a solid state motor speed control.
- Can also be used to ventilate two small and one large bathrooms.
- The unit is small enough to fit above a drop ceiling or in a second floor cavity.

Recommended Bath Vent Fan Size	
Bath Size (sq. ft.)	**Fan Capacity (cfm)**
30	33
40	44
50	55
60	66
70	77
80	88
90	99
100	110
110	121
120	132

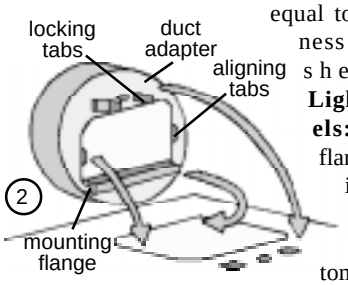
Installation Instructions for A Bathroom Ventilator from Marley

1) In attic, mark ceiling for cutout by using housing as template. Note that housing is mounted directly to ceiling joist.

2) Attach duct adapter onto housing. Press firmly to lock in place. See diagram #2. Insure that damper opens and closes freely. The attachment of the duct may be reinforced by installing a #8AB screw through the obround hole in the duct adapter and the small hole in the housing.



3) Attach housing directly to ceiling joist using (4) screws or nails. **Nonlighted Models:** Bottom flange of housing should drop below bottom of ceiling joist a distance equal to the thickness of the sheetrock. **Lighted Models:** Bottom flange of housing should drop below bottom of ceiling joist a distance equal to the thickness of the sheetrock minus $^{5}/_{16}$".



4) Run 120 volt AC, 60 Hz power cable from wall switch/switches to appropriate knockout in housing. The knockout support may be reversed, if desired, to open alternate knockout hole. Use a BX or Romex connector in the knockout to secure power cables to housing.

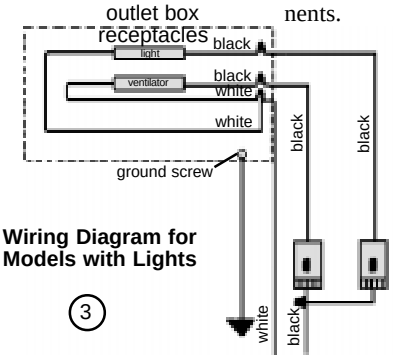
5) Remove the outlet box cover from housing. See diagram #1. Connect cables from wall switch/switches to receptacle wires using approved wire connectors. Connect ground wire to green wire in outlet box. Replace outlet box cover insuring locking tab is engaged. See diagram #3 for wiring diagrams. ***CAUTION:*** Be sure all wiring complies with local and national electrical codes and housing is properly grounded.

6) Install 4" round duct to duct adapter on housing. Insure that duct discharges the fan to the outside. Be sure nothing obstructs the discharge of the vent. Take precautions to assure that insulation does not get into duct work or fan discharge opening.

7) After sheetrock and plaster has been put up, install grille to housing by squeezing grille springs and inserting into slots inside the housing. See diagram #1. **Lighted Models:** Install a 100 watt, type A10 light bulb into lamp receptacle. Secure reflector assembly to grille with the (4) Type 6 screws.

WARNING: RISK OF FIRE — Use of lamps other than those specified constitutes a fire hazard.

8) Check installation to insure that wiring has been installed properly and that no mechanical noise is present which may be caused by loose components.

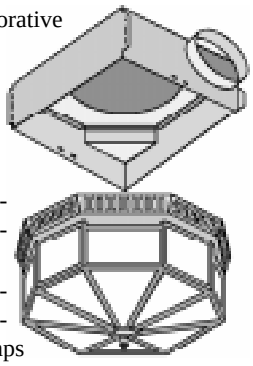


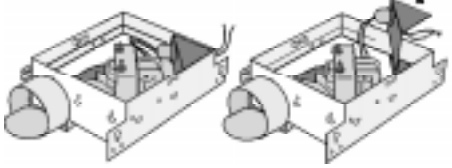
Wiring Diagram for Models with Lights

3

Decorative Bath Fan from Marley

- Attractive fixture blends with any decor
- The ventilating fan is an integral part of the decorative fixture
- Eliminates the need for separate ventilating and lighting units
- High quality performance within an attractive design
- Illumination provided by four 60-watt candelabra lamps
- Features the patented snap-in junction box cover making the fan quick and easy to install.





FR Series Remote In-line Fan from Fantech

- Waterproof gasket on wiring box
- 108 to 563 cfm
- 4" to 10" duct diameters
- Five-year factory warranty
- 100% speed controllable
- Housing manufactured of engineered thermoplastic, which is UL recognized and UV protected
- UL listed for outdoor use or in wet locations and in conditioned airstreams of up to 140°F
- Caulked at the motor screws, the wiring cable and along seams to prevent moisture entering
- External wiring box for ease of connection